Fermi National Accelerator Laboratory

Software Support: Pre-empting the Quick Question*

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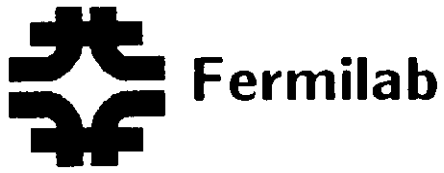Applications Group
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Abstract

High energy physicists, researchers and graduate students, from universities all around the world come to Fermi National Accelerator Laboratory to do their experiments. They use our computer facilities to perform all phases of their data-analysis and presentation. We have a large turnover of users and a rather small support group, in a multi-vendor environment. We strive to make our users self-sufficient through the use of well-publicized maintenance procedures, documentation systems, and product support standards. By these pre-emptive measures we attempt to have quick answers at hand for the truly quick questions, leaving us time for the interesting problems.

Software Support:
Pre-empting the Quick Question

Once Upon A Time...

Once upon a time, in those long ago and far away days when files were found in cabinets and "cut and paste" implied scissors and glue, the role of the computer consultant was very prestigious indeed. Computer users were limited to a well-defined set of scientists who were content with GOTOs, card-readers, and single precision number crunching. The consultant was that Guru of Last Resort, the Wizard who could be found in the wee hours before dawn, who could read a system dump as if it were his mother tongue, and who was treated with the greatest of Humility and Respect. The prerequisites for this unofficial Position of Honour did not include such trivialities as listening, speaking, or writing skills; all that was required was a hefty appetite for stale popcorn and twinkies, an office in the darkest corner of the basement, and a mind that counted in binary.

Welcome to the eighties, where consulting is the underpaid and overburdened (if officially recognized) Afterthought of the Computer Revolution. No longer shrouded in mystery and awe, the consultants of today are mere mortals who are expected to be easy-to-find during regular business hours, able to communicate with an increasingly diverse user-community, and knowledgeable in areas that range far and wide from the technical programming of days gone by. In the continuing struggle to retain the feeling of professional challenge, it is frequently all too easy to "brush-off" the quick question in favour of more interesting pursuits.

At Fermi National Accelerator Laboratory we are attempting to do the impossible: provide a complete spectrum of consulting services which satisfies our users without disenchanting our staff. High energy physicists from universities throughout the world use the computer facilities at Fermilab to perform all phases of their research -- data acquisition, mathematical analysis, word processing, graphics display, and publishing, to name a few. We have an extremely small support group which must meet the needs of a large number of users, ranging in skill from novice to expert. We therefore strive to make our users self-sufficient through the use of well-publicized maintenance procedures, documentation systems, and product support standards. By these pre-emptive measures we attempt to have quick answers at hand for the truly quick questions, leaving us time for the interesting problems.

Product Support Philosophy

The computing facilities at Fermilab consist of an intricate web of overlapping software packages, interface tools and peripheral devices layered upon a conglomeration of mainframes, micro-processors, PCs, and workstations. Our product support structure must be flexible enough to handle many widely varying types of hardware, software, and vendor requirements; yet it must also be rigid enough to be consistent and predictable for our users. Above all, it must effectively serve the growing needs of the high energy physics community, within the constraints of tight federal budgets and staffing restrictions.

In the belief that an informed user is a satisfied and more productive user, our entire product support structure has been designed to encourage users to go beyond their immediate question of "How?" to the deeper and more enlightening question of "Why?". Rather than trying to maintain an aura of mystery, we make our policies and standards available to the public. This provides us with the opportunity to receive valuable feedback from our user community. Users may go "browsing" through the product files in search of useful items without the need of a consultant. They are encouraged to read on-line HELP and associated documentation files, attend seminars and classes, investigate the Computing Department Library -- in short, we try to keep all of our resources open to the public for their enrichment and education. By giving our users access to as much information as possible, we seek to avoid many of the redundant and time-consuming questions often faced by consultants in other environments.

Product Maintenance

Our maintenance procedures reflect this attitude of "public awareness". Before a new release of *any* product is installed, we announce to our users (via electronic NOTICE and NEWS utilities) that a change is coming. We invite them (beg them, plead with them) to test the new version before actual installation so that the transition may be made smoothly. This policy has its disadvantages, including a plethora of announcements at login which inevitably scroll off the screen long before anybody has the chance to read them. It has, however, averted many traumatic consultation sessions through the anticipation of backwards-incompatibility in all products.

Many of our users are located off-site and use our facilities only occasionally, so that merely announcing an impending upgrade at login is not sufficient. As part of our product maintenance standards, we keep a detailed history of all products, on-line whenever practical. When not in conflict with licensing agreements, we also make public the actual source codes. By allowing our users easy access to the entire suite of product files (rather than just the pieces required for use) we encourage them to try solving problems on their own before seeking a consultant for help.

Et Cetera

In the age of electronic information systems, there are still those people who need to see things in "black and white". Our Computing Department Library provides full documentation for all of our products, from vendor-supplied technical manuals to locally-written user guides. We offer well-publicized training courses and demonstrations for many of our products, as well as regularly scheduled Computing Department seminars which cover a wide range of topics. In addition, we publish a bimonthly general newsletter and several special interest newsletters which attempt to anticipate the needs of the user community in a timely fashion.

GRIPE

Another line of defense in our battle against the walk-in "quick question" is our use of the electronic mail facility. We encourage our users to MAIL their questions to user GRIPE. This mailbox is checked daily by the consulting staff. We frequently find the same questions being asked by many users, so that a reply may often be drawn from a pool of (very polite and friendly) "stock" answers. This shields our consultants from the most trivial questions while satisfying our users with a quick response. When "expert" advice is required, the GRIPE may be forwarded to the most qualified persons (usually those who are on vacation) without the delay of physically locating them. Each GRIPE is tracked through to completion and logged for posterity. This provides us with an historical and educational picture of the user support services at Fermilab, through which we can flag out-of-date documentation and other serious problems or concerns.

An additional benefit of the GRIPE facility is that it encourages users to explore the problem -- or at least explain it -- before seeking the aid of a consultant. It is quick and painless to send a reply that says "I need more information before I can begin to analyze the problem". In a face-to-face environment the consultant is frequently wracked by feelings of inadequacy and guilt in turning away an ill-prepared client. The act of writing the complaint forces our users to clarify and order their thoughts.

Consulting Guidelines

No matter how hard we try to make our users self-sufficient, there will always be those persistent few who choose not to meet the challenge, that handful of users who feel the need for personal contact with an "expert" for *every* problem they encounter. To our consultants, faced with the prospect of perpetuating this unproductive state of affairs, we offer the following guidelines:

1. Always ask the user which manuals or HELP files have been previously consulted. Emphasize the importance of these

documentation aids. Don't be afraid to request some "homework" before providing additional personal service to the user who has made absolutely no attempt at self-help.

2. Don't be afraid to ask dumb questions ("Is it plugged in?"). Each user who walks away with the embarrassingly obvious answer will be much more inclined to thoroughly investigate any subsequent problems before crying wolf.

3. Don't be afraid to say "I don't know". (Note that this will help to explode the myth of infallibility that still surrounds consultants!) Investigate the problem with the user, and treat the consulting session as an educational experience for both of you. Go through the steps in analyzing the problem aloud and explain your reasoning. By setting a good example you will encourage the users to believe that they can find the answer on their own.

4. Be friendly and pleasant at all times. While a generally surly attitude will dissuade many users from returning, you will be left with only those whose demeanor is worse than your own! On the other hand, a helpful and understanding attitude will convince most users that you are a wonderful person who benevolently put aside Many Important Things on their behalf. You will earn their gratitude and appreciation -- and their respect for your time!

...Happily Ever After

In the rapidly evolving world of high energy physics computing, the importance of self-reliance has emerged as the central focus of our user support services at Fermilab. In our efforts to provide an enriching and productive environment for users and staff alike, we have structured our product support system in a manner that encourages our users to explore strange new features, to seek out on-line HELP and product documentation files, to boldly go where every user should go before soliciting the aid of a consultant. It is our hope that through these pre-emptive measures we may take advantage of the capabilities of the computer itself in providing distributed and automated answers to the "quick question".